

## SOLAR RADIATION DATA FOR FEBRUARY 1949

Explanation of tables 1 and 2 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the MONTHLY WEATHER REVIEW, volume 72, No. 1, January 1944, page 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in table 1 appears in volume 75, No. 3, March 1947, page 47.

An Eppley 180° pyrheliometer and Brown Electronik recording potentiometer were installed at the Weather Bureau office at Santa Maria, Calif., early this year. Similar equipment is now being operated at the Weather Bureau office at Oak Ridge, Tenn. Beginning with this issue, daily totals and weekly means of total solar and sky radiation received on a horizontal surface at these two stations will appear regularly in table 2.

The coordinates for Santa Maria are: Latitude 34°56' N., longitude 120°25' W., elevation 11.5 meters m. s. l., while at Oak Ridge they are latitude 35°55' N., longitude 84°19' W., elevation 220.55 meters m. s. l.

Obstructions to the free horizon at Santa Maria are limited to an anemometer pole and vane rising 45° above the horizon to the northeast, two antenna poles 1" in diameter to the south and southeast, and a wind sock also in the southeast. No man-made obstructions create shading of the pyrheliometer at Oak Ridge but the station is surrounded by hills ranging in elevation from practically zero to the northeast to 14° above the horizon at Haw Ridge to the south-southeast.

TABLE 1.—Solar radiation intensities during February 1949

[Gram calories per minute per square centimeter of normal surface]

Date	Sun's zenith distance								Vapor pressure	
	A. M.				P. M.					
	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°		
									7:30 a.m. <sup>1</sup> 1:30 p.m. <sup>1</sup>	

## MADISON, WIS.

February	Air mass									
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81	
	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb. mb.
9	0.68	0.79	1.04	1.31		1.33		0.7	1.3	
10	0.71	.87	1.02	1.25		1.37		2.1	1.7	
15	.79	.90	1.02	1.18		1.16		1.0	2.3	
18						1.35		5.3	6.1	
25						1.33		2.3	2.2	
28								.9	1.0	
Means	.78	.92	1.07	1.27		1.31				
Departures	-.07	-.08	-.07	-.06		-.01				

## TABLE MOUNTAIN, CALIF.

February	Air mass									
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76	
	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb. mb.
8						1.61				
9	1.14	1.23	1.35	1.49						
17	1.21	1.29	1.39	1.52						
18						1.61				
25						1.47				
Means	1.18	1.26	1.37	1.52						
Departures	.00	-.01	-.01	+.01						

TABLE 1.—Solar radiation intensities during February 1949—Con.

Date	Sun's zenith distance								Vapor pressure
	A. M.				0.0		P. M.		
	78.7	75.7	70.7	60.0			60.0	70.7	75.7
BOSTON, MASS.									

February	Air mass										
	4.06	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb. mb.	
1	0.80	1.01	1.15							2.0	2.0
2	.64	.74		1.05						3.1	3.6
8	.56	.64	.85	1.05						7.4	6.9
9										2.2	2.4
17							1.44	1.33	1.18	1.11	5.2
21								1.11			2.4
23								.69			3.2
24									.63		6.6
Means	.65	.82	1.02	1.09				1.32	1.12	.94	.87
Departures	+.01	+.04	+.13	.00				+.15	+.08	+.15	+.19

## BLUE HILL, MASS.

February	Air mass										
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb. mb.	
1	0.92	1.06	1.16		1.38		1.42	1.17	1.04	.95	3.0 2.6
2	.72	.92	.90	1.07						2.2	2.7 3.7
6	.62	.79	1.02		1.27		1.29	1.19	1.05	.97	2.5 4.0
7	.74	.88	1.04		1.27						
11											
16											
17											
18											
27											
Means	.82	.96	1.04	1.26				1.30	1.13	1.00	.89
Departures	-.09	-.06	-.06	-.03				-.01	-.01	-.01	-.01

## LINCOLN, NEBR.

February	Air mass										
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mb. mb.	
1	0.85	1.09	1.31		1.31		1.31	1.13	0.96	0.83	1.0 1.7
8	0.72	.92	1.11	1.27							2.7 2.5
9	.62	.79	1.02	1.29							
11	.81	.92	1.05	1.27							
16	.92	1.02	1.15	1.29							
17	.83	.96	1.12	1.30							
18	.90	1.01	1.12	1.30							
28	.87	.98	1.11	1.27							
Means	.81	.93	1.09	1.29				1.30	1.12	.92	.84
Departures	-.09	-.07	-.06	-.05				-.03	-.09	-.09	-.07

\*Extrapolated.

<sup>1</sup>75th Meridian Time.

NOTE.—Figures in parenthesis are interpolated.

TABLE 2.—*Daily totals and weekly means of solar radiation (direct+diffuse) received on a horizontal surface during February 1949*  
 [Gram-calories per square centimeter]

**ACCUMULATED DEPARTURES ON FEBRUARY 25, 1949**

## EXPLANATION OF TRACKS OF HIGHS AND LOWS FOR MONTHLY WEATHER REVIEW

Beginning with the January 1949 issue Charts II and III, Tracks of Centers of Cyclones and Anticyclones, have been revised in several ways. Only those centers which have a history of at least 24 hours are used. The 7:30 a. m. positions are indicated by small open circles with the date above and the central pressure to whole millibars below. Intermediate positions are indicated as before by

dots; however, they are now at 6-hourly intervals instead of 12-hourly. A dashed track indicates a regeneration rather than actual movement to the next position. Semi-permanent features such as the Great Basin and the Pacific highs, Colorado and Mexico lows, are not shown. Data are taken from the North American sea level maps of the WBAN Analysis Center.